

The Melting Diagram in the Ternary System of
Sodium-, Potassium- and Calcium Fluorides

05882
SOV/78-4-11-35/50

ASSOCIATION: Rostovskiy-na-Donu inzhenero-stroitel'nyy institut
(Rostov-na-Donu Institute of Civil Engineers)

SUBMITTED: May 19, 1958

Card 2/2

BUKHALOVA, G.A.; YAGUB'YAN, Ye.S.

Tertiary system consisting of potassium, sodium, and barium chlorides. Izv. vys. ucheb. zav; khim. i khim. tekhn. 3
no. 5:783-786 '60. (MIRA 13:12)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
Kafedra obshchey khimii.
(Potassium chloride) (Sodium chloride)
(Barium chloride)

5(2)
 AUTHORS: Bukhalova, G. A., Berezhnaya, V. T. S/078/60/005/02/033/045
 B004/B006
 TITLE: The Quaternary System of Lithium²⁷, Sodium²⁷, Potassium²⁷, and Calcium²⁷ Fluorides²⁷
 PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 2, pp 456-468 (USSR)
 ABSTRACT: The authors give an introductory survey of data published for the six binary and four ternary systems formed by the components of the quaternary system Li, Na, K, Ca || F which they investigated. In this connection, they mention papers by A. G. Bergman and Ye. P. Dergunov (Ref 2), G. A. Bukhalova, K. Sulaymankulov, and A. K. Bostandzhiyan, A. G. Bergman, and K. A. Yevdokimova. A survey of the ternary system Na,K,Ca || F, first investigated by the authors, is given in figure 1. In the quaternary system, the eight quaternary cuts illustrated in figure 2 were investigated. The results are shown in figures 3-10 and tables 1-8. Basing on these data, the authors constructed the crystallization regions of LiF, NaF, KF, CaF₂, and K[CaF₃] (Fig 11), which meet in four

Card 1/2

The Quaternary System of Lithium-, Sodium-, Potassium-, and Calcium Fluorides

S/078/60/005/02/033/045
B004/B006

quaternary nonvariant points, one transition point (566°) and one eutectic point (444°). Notice is drawn to the low melting temperature of the eutectic. To define the position and temperature of the nonvariant points more precisely, four orthogonal projections are constructed on the surface of the system tetrahedron. The projection on the surfaces Li,Na,K || F and the temperature projection are shown in figures 12 and 13 respectively. In this quaternary system, the complex compound $K[CaF_3]$ melts incongruently. There are 13 figures, 8 tables, and 6 references, 5 of which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut
(Rostov-na-Donu Institute for Construction Engineers)

SUBMITTED: July 20, 1958

Card 2/2

5.2400(B) 69029
AUTHORS: Berezhnaya, V. T., Bukhalova, G. A. S/078/60/005/04/027/040
B004/B016
TITLE: The Ternary Systems of Strontium Fluoride and Fluorides of Alkali Metals
PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 925 - 929 (USSR)
ABSTRACT: The authors investigated the systems $\overset{\wedge}{\text{Li}}, \overset{\wedge}{\text{Na}}, \text{Sr} \parallel \text{F}$ (I), $\text{Li}, \overset{\wedge}{\text{K}}, \text{Sr} \parallel \text{F}$ (II), and $\text{Na}, \text{K}, \text{Sr} \parallel \text{F}$ (III) according to the polythermal method. Figures 1, 2 show the seven sections through the system I and the melting-point diagram, figures 3, 4 the corresponding data of system II, and figures 5, 6 of system III. In all three systems only simple eutectics are formed without complex formation. In all systems the SrF_2 which is fusible more difficultly has the largest field of crystallization whereas the components melting more readily have the smallest field of crystallization. In systems II and III the isothermal lines take a convex course, in system I a concave one in all fields. There are 6 figures and 5 Soviet references.
ASSOCIATION: Rostovskiy inzhenerno-stroitel'nyy institut (Rostov Engineering and Construction Institute)
SUBMITTED: January 2, 1959
Card 1/1

BUKHALOVA, G.A.; MATEYKO, Z.A.

Ternary systems of potassium sulfate, chromate, and tungstate,
and of potassium molybdate, chromate, and tungstate. Zhur.
neorg.khim. 5 no.5:1132-1134 My '60. (MIRA 13:7)

1. Rostovskiy-na-Doni inzhenerno-stroitel'nyy institut.
(Systems(Chemistry))

S/078/60/005/000/032/040/XX
B017/B058

AUTHOR: Berezhnaya, V. T.; Bukhalova, G. A.

TITLE: The Quaternary System Lithium Fluoride - Sodium Fluoride - Potassium Fluoride - Strontium Fluoride

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 2061 - 2070

TEXT: The quaternary system Li, Na, K, SrF₂ was studied by means of the visual-polythermal method. All initial salts were prepared by dissolving chemically pure carbonates of strontium, sodium, potassium and lithium in twice distilled hydrofluoric acid. Eight polythermal inner sections through the tetrahedron of the system Li, Na, K, SrF₂ were studied and their arrangement in the tetrahedron is represented in Fig. 2. Each section of the systems was studied by means of the polythermal inner sections. The results are shown in Figs. 3 - 10. Fig. 11 shows the three-dimensional diagram of the system. The system Li, Na, K, SrF₂ studied represents a

Card 1/2

The Quaternary System Lithium Fluoride -
Sodium Fluoride - Potassium Fluoride -
Strontium Fluoride

S/078/60/005/009/032/040/XX
B017/B058

simple type of a quaternary system with four eutectics. The orthogonal projection of this system on the Li, Na, K₂F face is shown in Fig. 12. The authors mention A. G. Bergman and Ye. P. Dergunov. There are 12 figures, 4 tables, and 7 Soviet references.

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut
(Rostov-na-Donu Institute of Civil Engineering)

SUBMITTED: May 4, 1959

Card 2/2

S/078/60/005/009/033/040/XX
B017/B058

AUTHORS: Mateyko, Z. A., Bukhalova, G. A.

TITLE: The Quaternary System Potassium Sulfate - Potassium Chromate - Potassium Molybdate - Potassium Tungstate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 2071 - 2075

TEXT: The liquidus surface of the system $K||SO_4, CrO_4, MoO_4, WO_4$ was studied by the visual-polythermal method. The ionic radii of the anions of this system are mentioned in Table 1. The system studied and the arrangement of the polythermal sections in it are represented in Fig. 1 as a tetrahedron. The arrangement of the sections through the tetrahedron is illustrated in Figs. 4-8 by means of the corresponding projections of the diagram. The numerical data are listed in Table 2. The study of the system $K||SO_4, CrO_4, MoO_4, WO_4$ by means of five polythermal sections shows that continuous solid solutions form in this system on crystallization. The projection of the surfaces of the resulting solid phases on the tetra-

Card 1/2

The Quaternary System Potassium Sulfate - S/078/60/005/009/033/040/XX
Potassium Chromate - Potassium Molybdate - B017/B058
Potassium Tungstate

hedron of the composition is shown in Fig. 9. There are 9 figures,
2 tables, and 4 references; 3 Soviet and 1 Italian. ✓

ASSOCIATION: Rostovskiy-na-Donu inzhenerno - stroitel'nyy institut
(Rostov-na-Donu Institute of Civil Engineering)

SUBMITTED: May 4, 1959

Card 2/2

S/078/60/005/011/012/025
B015/B060

AUTHORS: Bukhalova, G. A., Yagub'yan, Ye. S.

TITLE: Stable Cross Sections of the Quaternary Reciprocal System
From Fluorides and Chlorides of Sodium, Potassium, and
Barium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 11,
pp. 2503-2508

TEXT: The Na,K,Ba // F,Cl system plays an important role in the production of fluxing materials for nonferrous metals. The upper pinacoid of the prism (Fig. 1, constitution diagram) which constitutes the eutectic ternary Na,K,Ba // F system, had already been investigated by A. G. Bergman and K. A. Yevdokimova. The article under consideration supplies the results obtained from an investigation of the four stable cross sections (Figs. 4-7) which divide the constitution prism of the system mentioned in the title into five tetrahedra. A visual-polythermal method was used for the investigation. The topological analysis of the constitution diagram permits the prism to be divided into the following five tetrahedra:

Card 1/3

Stable Cross Sections of the Quaternary
Reciprocal System From Fluorides and Chlorides
of Sodium, Potassium, and Barium

S/078/60/005/011/012/025
B015, B060

I $K_2Cl_2 - BaF_2 - Na_2F_2 - K_2F_2$ II $K_2Cl_2 - BaF_2 - Na_2F_2 - BaF_2 \cdot BaCl_2$
III $K_2Cl_2 - Na_2F_2 - BaF_2 \cdot BaCl_2 - Na_2Cl_2$ IV $K_2Cl_2 - Na_2Cl_2 - BaF_2 \cdot BaCl_2 - K_2Cl_2 \cdot BaCl_2$

V $BaF_2 \cdot BaCl_2 - K_2Cl_2 \cdot BaCl_2 - Na_2Cl_2 - BaCl_2$. Only tetrahedron I constitutes a simple quaternary system and a quaternary eutectic point. Apparently, the nonvariant point corresponding to tetrahedron II shifts toward tetrahedron III which thus contains the quaternary eutectic and the quaternary transition point. The topological analysis revealed that the tetrahedron can be stable only if the $K_2Cl_2 \cdot BaCl_2$ compound remains stable within the system. Also in that case, however, the invariant point shifts to tetrahedron V. The investigation showed that the tetrahedron V has the lowest melting point of the quaternary system. There are 7 figures and 5 references: 4 Soviet and 1 German.

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut
(Rostov-na-Donu Institute of Civil Engineering)

Card 2/3

Stable Cross Sections of the Quaternary
Reciprocal System From Fluorides and Chlorides
of Sodium, Potassium, and Barium

S/078/40/005/011/012/025
B015/B060

SUBMITTED: March 10, 1959

Card: 3/3

S/078/11/006/003/016/022
B121/B.08

AUTHORS: Berezhnaya, V. T., Bukhalova, G. A.

TITLE: Melting-point diagrams of quaternary systems from fluorides of lithium, sodium, potassium, and barium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 3, 1961, 687-698

TEXT: The system Li, Na, K, Ba || F was studied by the visual-polythermal method. The melting-point diagrams of the binary systems $\text{Li}_2\text{F}_2 - \text{K}_2\text{F}_2$, $\text{Li}_2\text{F}_2 - \text{Na}_2\text{F}_2$, $\text{Li}_2\text{F}_2 - \text{BaF}_2$, $\text{Na}_2\text{F}_2 - \text{K}_2\text{F}_2$, $\text{Na}_2\text{F}_2 - \text{BaF}_2$, $\text{K}_2\text{F}_2 - \text{BaF}_2$, and the ternary systems Li, Na, K || F, Li, K, Ba || F, Li, Na, Ba || F, and K, Na, Ba || F were checked; the results are in good agreement with published data. The system K, Na, Ba || F was studied by K. A. Yevdokimova and A. G. Bergman. To investigate the quaternary systems, eight inner polythermal sections were made through their tetrahedra. Each of these sections was studied with the aid of four inner polythermal sections which are shown in the form of binary systems. The system shows five crystallization areas of the

Card 1/20
2

Melting-point diagrams of...

S/078/61/006/003/016/022
B121/B208

four components and the compound $\text{LiF} \cdot \text{BaF}_2$. The latter characterizes the melting-point diagram of the quaternary system; the lithium ion in this compound appears as a complexing agent that forms $\text{Ba}[\text{LiF}_3]$. The individual sections are graphically shown in Figs. 3-10. The ability of the fluorides of lithium, sodium, and potassium to form complexes with the fluorides of metals of the second group of the periodic system depends on the polarizability of the three cations. There are 12 figures, 6 tables, and 23 references: 18 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Rostovskiy inzhenerno-stroitel'nyy institut (Rostov Institute of Construction Engineering)

SUBMITTED: December 21, 1959

Card 2/10
2

MATEYKO, Z.A.; BUKHALOVA, G.A.

Ternary system consisting of lithium, calcium, and strontium fluorides. Zhur. neorg. khim. 6 no.7:1728-1730 J1 '61.

(MIRA 14:7)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
(Lithium fluoride) (Calcium fluoride)
(Strontium fluoride)

S/078/61/006/009/006/010
B107/B101

AUTHORS: Berezhnaya, V. T., Bukhalova, G. A.

TITLE: The ternary system magnesium fluoride - calcium fluoride -
barium fluoride

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 9, 1961, 2136 - 2138

TEXT: The crystallization surfaces of the ternary system MgF_2 - CaF_2 - BaF_2 were determined (Fig. 1). 0.1% of ammonium fluoride was added to mixtures rich in MgF_2 , in order to prevent hydrolysis. Twelve sections in all were investigated. Results: The system has four crystallization surfaces: the three components and the incongruently melting compound $\text{BaF}_2 \cdot 2\text{MgF}_2$. The system has two non-variant points: a eutectic point at 777°C , 27% MgF_2 , 21% CaF_2 , 52% BaF_2 , and a peritectic point at 819°C , 46% MgF_2 , 28% CaF_2 , 26% BaF_2 . The crystallization surface of $\text{BaF}_2 \cdot 2\text{MgF}_2$ extends into the field; this shows that the compound endeavors to obtain congruent solubility-
Card 1/3

The ternary system magnesium fluoride ... S/078/61/006/009/006/010
B107/B101

ty. The ternary system investigated has a very low-melting eutectic in comparison to the melting points of the components. It may be satisfactorily applied as flux for welding aluminum and aluminum alloys. There are 3 figures and 3 references: 1 Soviet and 2 non-Soviet.

ASSOCIATION: Rostovskiy inzhenerno-stroitel'nyy institut (Rostov Institute of Construction Engineering)

SUBMITTED: July 20, 1960

Fig. 1: Projection of the crystallization surface of the system Mg^{2+} , Ca^{2+} , $Ba^{2+} || F^-$ on the composition triangle.

Card 2/3

BUKHALOVA, G.A.; BEREZHNYAYA, V.T.; BERGMAN, A.G.

Ternary systems consisting of calcium, barium, and alkali metal
fluorides. Zhur.neorg.khim. 6 no.10:2359-2363 0 '61.
(MIRA 14:9)

1. Rostovskiy inzhenerno-stroitel'nyy institut.
(Systems (Chemistry))

S/078/62/007/001/005/005
B119/B110

AUTHORS: Mateyko, Z. A., Bukhalova, G. A.

TITLE: Fusing diagrams of the ternary systems: lithium, magnesium, strontium, and barium fluorides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 1, 1962, 165-168

TEXT: In the present paper, the systematic examination of the interaction between alkali fluorides and fluorides of alkaline earths was continued. The systems Li, Mg, SrF and Li, Ba, SrF were studied. Examinations were conducted visually in a platinum crucible with a platinum stirrer at various temperatures. The temperature was measured with a Pt/Pt - Rh thermocouple. The crystallization surface of the system Li, Mg, SrF was studied on 10 internal sections. The crystallization fields of the three components meet in the eutectic point corresponding to 646°C and 36% Li₂F₂, 25% SrF₂, and 39% MgF₂. The Li₂F₂ field covers the smallest area due

to its low melting point, but penetrates deeply into the fields of the other two components. The crystallization surface of the system Li, Ba, SrF was also studied on 10 internal sections. It consists of an Li₂F₂

Card 1/2

Fusing diagrams of the ternary ...

S/078/62/007/001/005/005
B119/B110

field, $\text{Li}_2\text{F}_2 \cdot 2\text{BaF}$ field, and that of continuous solid barium fluoride - strontium fluoride solutions. Eutectic point: 721°C , 21% SrF_2 , 53% Li_2F_2 , 26% BaF_2 . Transition point: 780°C , 24% SrF_2 , 43% Li_2F_2 , 33% BaF_3 . The extremely low melting point of the eutectic mixture of the system Li, Mg, $\text{Sr}\|\text{F}$ (646°C), allows the latter to be used as flux for welding nonferrous metals. The system Li, Ca, $\text{Sr}\|\text{F}$ was not studied. The authors assume the eutectic mixture to melt below 700°C . Among others, a paper by A. G. Bergman, Ye. I. Banashek (Ref. 1: Izv. Sektora fiz.-khim. analiza IONKh AN SSSR, 23, 201 (1953)) is mentioned. There are 4 figures, 1 table, and 6 Soviet references. ✓

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut
(Rostov-na-Donu Construction Engineering Institute)

SUBMITTED: November 30, 1960

Card 2/2

S/078/62/007/006/015/024
B119/B138

AUTHORS: Bukhalova, G. A., Maslennikova, G. N.

TITLE: Tetrahedral sections of the reciprocal quaternary system composed of the fluorides and chlorides of sodium, potassium, and calcium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1408-1414

TEXT: Using the polythermal method the authors studied the systems $\text{Na}_2\text{F}_2 - \text{K}_2\text{F}_2 \cdot 2\text{CaF}_2 - \text{K}_2\text{Cl}_2$ (1), $\text{Na}_2\text{F}_2 - \text{CaF}_2 - \text{K}_2\text{Cl}_2$ (2), $\text{Na}_2\text{Cl}_2 - \text{K}_2\text{Cl}_2 - \text{CaF}_2$ (3), $\text{Na}_2\text{Cl}_2 - \text{K}_2\text{Cl}_2 - \text{CaF}_2 \cdot \text{CaCl}_2$ (4), and $\text{Na}_2\text{Cl}_2 - \text{CaF}_2 \cdot \text{CaCl}_2 - \text{K}_2\text{Cl}_2 \cdot 2\text{CaCl}_2$ (5), all of which belong to the system $\text{Na, K, Ca} \parallel \text{F, Cl}$ as tetrahedron-forming sections. Among the systems mentioned, 2 and 3 proved to be pseudoternary systems. A comparison of results has shown that the mixtures with the lowest melting points are within the tetrahedron $\text{Na}_2\text{Cl}_2 - \text{K}_2\text{Cl}_2 \cdot 2\text{CaCl}_2 - \text{CaCl}_2$. Section 1: monovariant points (in %-equiv) at 71% K_2Cl_2 , 27% Na_2F_2 , 2% $\text{K}_2\text{F}_2 \cdot 2\text{CaF}_2$ (melting temperature (T_p) 642°C)
Gard 1/2

Tetrahedral sections of the...

S/078/62/007/006/015/024
B119/B138

and 43% Na_2F_2 , 3% K_2Cl_2 , 54% $\text{K}_2\text{F}_2 \cdot 2\text{CaF}_2$ (F_p 757°C). Section 2: eutectic point at 25% Na_2F_2 , 74% K_2Cl_2 , 1% CaF_2 (F_p 635°C). Section 4: lowest F_p at 648°C and 48.5% Na_2Cl_2 , 48.5% K_2Cl_2 , and 3% $\text{CaF}_2 \cdot \text{CaCl}_2$. Section 5: monovariant point at 28% Na_2Cl_2 , 11% $\text{CaF}_2 \cdot \text{CaCl}_2$, 61% $\text{K}_2\text{Cl}_2 \cdot 2\text{CaCl}_2$ (F_p 530°C). The data of section 3 have been published earlier: G. A. Bukhalova, A. G. Bergman. Zh. prikl. khimii, 28, 1266 (1955). There are 8 figures and 1 table.

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut, Kafedra khimii (Rostov-na-Donu Construction Engineering Institute, Department of Chemistry)

SUBMITTED: July 27, 1961

Card 2/2

40138

S/078/62/007/007/007/013
B117/B101

1.2300

AUTHORS: Bukhalova, G. A., Maslennikova, G. N., Rabkin, D. M.

TITLE: Ternary reciprocal system of chlorides and hexafluoroaluminates of sodium and potassium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1640 - 1643

TEXT: Components of the system Na^+ , $\text{K}^+ \parallel \text{Cl}^-$, AlF_6^{3-} are used in the production of fluxes for welding aluminum and its alloys. This binary system was studied polythermally with the following results: Na_3Cl_3 - Na_3AlF_6 has a eutectic at 733°C and 27% Na_3AlF_6 . K_3Cl_3 - K_3AlF_6 has a eutectic at 717°C and 22% K_3AlF_6 . Na_3AlF_6 - K_3AlF_6 forms continuous solid solutions with a eutectic at 927°C and 30% K_3AlF_6 . Studies of 12 internal and 2 diagonal sections of the system showed the crystallization surface to consist of continuous solid solutions both of sodium and potassium hexafluoroaluminates and of sodium and potassium chlorides. The two regions are separated by a curve with a minimum at 631°C and 10.5% Na_3AlF_6 , 50% K_3AlF_6 .
Card 1/2

3/078/62/007/007/013
B117/B101

Ternary reciprocal system of...

K_2Cl_3 and 39.5% Na_2Cl_3 . The low heat effect of the exchange reaction (0.135 and 0.045 kcal/equ) proves the existence of a complete reciprocal exchange in melts. Hence it follows that potassium cryolite in molten state is also contained in a flux produced from sodium and potassium chlorides with sodium cryolite alone. The studies showed potassium cryolite to be very effective for welding Al and its alloys. The system examined has practical and scientific importance especially in the chemistry of aluminum salts in melts. There are 3 figures.

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut
(Rostov-na-Donu Construction Engineering Institute).
Institut elektrosvariki im. Ye. O. Patona Akademii nauk USSR
(Electric Welding Institute imeni Ye. O. Paton of the
Academy of Sciences UkrSSR)

SUBMITTED: July 7, 1961

Card 2/2

BUKHAILOVA, G.A.; ARABADZIAN, A.S.

Investigation of the ternary system consisting of lithium, sodium, and calcium chlorides. Zhur.neorg.khim. 7 no.9:2230-2232 S '62.

(MIRA 15:9)

1. Rostovskiy-na-Donu nauchno-issledovatel'skiy institut
tekhnologii mashinostroyeniya i Rostovskiy-na-Donu inzhenerno-
stroitel'nyy institut.

(Alkali metal chlorides) (Calcium chloride)

BUKHAIOVA, G.A.; BEFEZHAYA, V.T.; MATEYKO, Z.A.

Melting diagrams of the ternary systems consisting of calcium, strontium, sodium, and potassium fluorides. Zhur.neorg.khim. 7 no.9:2233-2236 S '62. (MIRA 15:9)
(Fused salts) (Systems (Chemistry)) (Fluorides)

BUKHALOVA, G.A.; MASLENNIKOVA, G.N.

Stable intersecting tetrahedron of the system
 Na^+ , K^+ , Ca^{2+} , Ba^{2+} || F^- , Cl^- . Zhur.neorg.khim. 7
no.11:2619-2626 N '62. (MIRA 15:12)
(Systems (Chemistry))
(Fused salts)

MATEYKO, Z.A.; BUKHALOVA, G.A.

Some cross sections of the quaternary reciprocal system Na^+ , Ca^{2+} , Ba^{2+} ||
 F^- , Cl^- . Zhur.neorg.khim. 8 no13:715-719 Mr '63. (MIRA 16:4) V
(Systems (Chemistry)) (Salts)

BUKHALOVA, G.A.; BEREZHNAIA, V.T.

Quaternary system: potassium, calcium, and barium fluorides. Zhur.-
neorg.khim. 8 no.4:964-968 Ap '63. (MIRA 16:3)
(Systems (Chemistry)) (Fluorides)

BUKHALOVA, G.A.; MATEYKO, Z.A.

Topological analysis of the quaternary reciprocal system Na, Ca,
Ba F, Cl. Zhur.neorg.khim. 8 no.5:1233-1238 My '63. (MIRA 16:5)
(Systems (Chemistry)) (Halides) (Crystallization)

BUKHALOVA, G.A.; MAL'TSEV, V.T.

System of fluorides and hexafluoroaluminates of sodium
and potassium. Zhur. neorg. khim. 10 no.1:189-193
Ja '65.

(MIRA 18:11)

1. Submitted July 18, 1963.

BABAYEVA, E.P.; BUKHALOVA, G.A.

System of sodium, potassium, and scandium fluorides. Zhur. neorg.
khim. 10 no.6:1455-1458 Je '65. (MIRA 18:6)

1. Rostovskiy inzhenerno-stroitel'nyy institut.

YAGUB'YAN, Ye.S.; BUKHALOVA, G.A.

Reciprocal system consisting of sodium, potassium, and barium
chlorides and fluorides. Zhur. neorg. khim. 10 no.6:1459-1463
Je '65. (MIRA 18:6)

MAL'TSEV, V.T.; BUKHALOVA, G.A.

Reciprocal system consisting of fluorides, chlorides, and
hexafluoroaluminates of sodium and potassium. Zhur. neorg.
khim. 10 no.6:1464-1470 Je '65. (MIRA 18:6)

BUKHALOVA, G.A.; BABAYEVA, E.P.; KHLIYAN, T.M.

System of sodium, potassium, and lanthanum fluorides. Zhur. neorg.
khim. 10 no.9:2127-2131 S '65. (MIRA 18:10)

BUKHALOVA, G.A.; ; YAGUB'YAN, Ya.S.

Density and molar volumes of melts in the ternary system of sodium,
potassium, and barium chlorides. Zhur. neorg. khim. 10 no.9:2132-
2136 S '65. (MIRA 18:10)

L 63642-65 ENT(m)/ENP(b)/ENP(t) IJP(c) JD

ACCESSION NR: AP5017982

UR/0073/65/031/007/0710/0713

543.7+620.193.43

17
16
B

AUTHOR: Sheyko, I. N.; Bukhalova, G. A.; Mal'tsev, V. T.

TITLE: Fusibility diagram of a reciprocal system of sodium and potassium fluorides and fluohafnates

SOURCE: Ukrainskiy khimicheskii zhurnal, v. 31, no. 7, 1965, 710-713

TOPIC TAGS: sodium fluohafnate, potassium fluohafnate, sodium fluoride, potassium fluoride, fusibility diagram, fused salt system

ABSTRACT: The system $\text{Na}_3\text{F} - \text{K}_3\text{F}$, HfF_7 was studied by a visual polythermal method in dry carbon dioxide. The following eutectics were found: in $\text{Na}_3\text{F}_3 - \text{Na}_3\text{HfF}_7$ at 762C and 22% Na_3F_3 , and in $\text{K}_3\text{F}_3 - \text{K}_3\text{HfF}_7$ at 766C and 55.5% K_3F_3 . In $\text{Na}_3\text{HfF}_7 - \text{K}_3\text{HfF}_7$, a continuous series of solid solutions with a minimum at 815C and 35% K_3HfF_7 was observed. The crystallization surface of the system $\text{Na}^+, \text{K}^+ // \text{F}^-$, HfF_7 was found to consist of three fields of crystallization, those of sodium fluoride, potassium fluoride, and continuous solid solutions of sodium and potassium heptafluohafnates. The system is reciprocal and irreversible. The $\text{Na}_3\text{F}_3 - \text{K}_3\text{HfF}_7$ diagonal section is in the nature of a binary system and divides the com-

Card 1/2

I 63642-65

ACCESSION NR: AP5017982

position square into two phase triangles. The K_3F_3 - Na_3F_3 - K_3HfF_7 phase triangle has a eutectic point at 680C with the composition 32% Na_3F_3 , 25% K_3HfF_7 , 43% K_3F_3 . In the Na_3F_3 - K_3HfF_7 - Na_3HfF_7 phase triangle, the curve of cocrystallization of sodium fluoride and solid solutions of sodium and potassium heptafluorohafnates has a slight minimum at 756C and the composition 20% Na_3F_3 , 20% K_3HfF_7 , 60% Na_3HfF_7 . The system Na^+ , $K^+ || F^-$, HfF_3^- is the first representative of fused salt systems involving alkali metal fluorohafnates. Orig. art. has: 3 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN UkrSSR (Institute of General and Inorganic Chemistry, AN UkrSSR)

SUBMITTED: 05Feb65

ENCL: 00

SUB CODE: IC, G-C

NO REF SOV: 002

OTHER: 000

Card ^{RC} 2/2

YAGUB'YAN, Ye.S.; BUKHALOVA, G.A.; KHLIYAN, T.M.

Enthalpy of the formation of $K_2Cl_2 \cdot BaCl_2$. Zhur.neorg.khim. 10
no.11:2581-2583 N '65. (MIRA 18:12)

1. Submitted January 18, 1964.

BUKHALOVA, G.A.; SEMENSOVA, D.V.

System of lithium, sodium, and cesium fluorides. Zhur.neorg.
khim. 10 no.8:1880-1882 Ag '65.

(MIRA 1961)

1. Rostovskiy inzhenerno-stroitel'nyy institut. Submitted
December 26, 1962.

BUKHALOVA, G.A.; BABAYEVA, E.P.

System of lithium, cesium, and lanthanum fluorides.
Zhur.neorg.khim. 10 no.8:1883-1885 Ag '65.

(MIRA 1971)

1. Rostovskiy inzhenerno-stroitel'nyy institut. Submitted
April 11, 1963.

BUKHALOVA, G.A.; SEMENSOVA, D.V.

System of fluorides and chlorides of lithium and cesium.
Zhur.neorg.khim. 10 no.8:1886-1889 Ag '65.

(MIRA 19:1)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
Submitted December 26, 1962.

L 26262-66 EWT(m) JD/JG

ACC NR: AP6014270

SOURCE CODE: UR/0153/66/009/001/0151/0153

AUTHOR: Mal'tsev, V. T.; Bukhalova, G. A.

ORG: Department of General Chemistry, Rostov-on-Don Construction Engineering
Institute (Kafedra obshchey khimii, Rostovskiy-na-Donu inzhenerno-stroitel'nyy
institut)

TITLE: Solid solutions of hexafluoroaluminates of potassium, rubidium, and cesium

SOURCE: ¹⁸IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 9, no. 1, 1966, 151-153

TOPIC TAGS: solid solution, thermographic analysis, electrical propulsion

ABSTRACT: Rubidium and cesium halides lose electrons easily and therefore are of interest as stabilizers in electric-arc welding of aluminum and its alloys. This work was aimed at determining the behavior of rubidium, cesium, and potassium attached to a complex anion, such as the hexafluoroaluminate ion. Binary systems of hexafluoroaluminates of rubidium, cesium and potassium were examined from this point of view. The starting components for the thermographic investigations were prepared by fusion of individual, analytical grade halides. It was found that K_3AlF_6 , Rb_3AlF_6 , and Cs_3AlF_6 melts on cooling form a continuous series of solid solutions, which decompose on further cooling. The formation of continuous solid solutions causes temperature shifts of polymorphic transitions; the latter are not observed in any of the systems on cooling down to 200C. Orig. art. has: 2 figures and 1 table. [VS]

SUB CODE: 16/ SUBM DATE: 28May64/ ATD PRESS: 4244
Card 1/1 cc UDC: 541.1

BUKHALOVA, G.A.; MARDIROSOVA, I.V.

Phase diagrams of the binary systems consisting of sodium
and potassium fluorides and metaphosphates. Zhur.neorg.khim.
11 no.1:160-163 Ja '66.

(MIRA 19:1)

1. Submitted January 25, 1965.

BUKHALOVA, G.A.; BURLAKOVA, V.M.

The system Li^+ , K^+ , Sr^{2+} Cl^- . Zhur.neorg.khim. 11 no.1:164-167
Ja '66. (MIRA 1981)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut. Submitted
May 21, 1965.

SEMENTSOVA, D.V.; BUKHALOVA, G.A.

System consisting of sodium, potassium, calcium, and
barium chlorides. Zhur.neorg.khim. 11 no.1:168-174,
Ja '66.

(MIRA 19:1)

1. Submitted June 8, 1964.

LITVINOVA, G.N.; BUKHALOVA, G.A.

A system consisting of sodium, potassium and calcium
chlorides and fluorides. Zhur.neorg.khim. 11 no.1:175-179
Ja '66. (MIRA 19:1)

1. Submitted February 8, 1965.

L 41729-66 EMT(m)/EMP(j)/T/EMP(t)/ETI IJP(c) JD/JW/JG/EM
 ACC NR: AP6020373 (A) SOURCE CODE: UR/0078/66/011/003/0624/0627
 42
 35
 3

AUTHOR: Bukhalova, G. A.; Babayeva, E. P.

ORG: General Chemistry Department, Rostov Engineering and Construction Institute
 (Kafedra obshchey khimii, Rostovskiy inzhenerno-stroitel'nyy institut)

TITLE: Complexing in rare earth fluoride and alkali metal melts

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 3, 1966, 624-627

TOPIC TAGS: cerium compound, ytterbium compound, lithium compound, potassium compound, sodium compound, cesium compound, fluoride

ABSTRACT: The authors propose a systematized treatment of complexing in binary fluoride systems. It is based on cation field intensities, which can be approximately characterized by the ratio of the cationic charge to the surface area of a sphere of cation radius R

$$H = \frac{ne}{4R^2}$$

where n is the valence and e is the charge. The ratio of the field intensity of the univalent cation H_I to that of the trivalent ion H_{III} characterizes the difference in the influence of these cations on the anion

$$p = \frac{H_I}{H_{III}}$$

UDC: 546.65'161+546.311'161

L 41729-66

ACC NR: AP6020373

The closer the field intensities of the cations, i.e., the closer p is to unity, the more similar will be the influence of the cations on the anion, and the less likely will be the formation of a complex compound. Ratios of the field intensities of alkali metal cations to those of rare earth cations were calculated. On the basis of these considerations, the nature of the interaction in systems which have not yet been studied can be predicted. An illustration are the binary systems LiF-YbF_3 , NaF-YbF_3 , KF-CeF_3 , and CsF-CeF_3 , which were studied thermographically. Phase diagrams of these systems were plotted, and the results confirmed the theoretical assumptions. Orig. art. has: 4 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 28May65/ ORIG REF: 003/ OTH REF: 002

Card 2/2 af

I 41732-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JW/JG

ACC NR: AP6020374

(A)

SOURCE CODE: UR/0078/66/011/003/0644/0647

AUTHOR: Bukhalova, G. A.; Babayeva, E. P.

ORG: none

TITLE: The system Na^+ , K^+ , $\text{Y}^{3+} \parallel \text{F}^-$

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 3, 1966, 644-647

TOPIC TAGS: fluoride, yttrium compound, potassium compound, sodium compound, phase diagram

ABSTRACT: The article constitutes a part of a study of complexing in rare earth fluoride and alkali metal fluoride melts. The system Na^+ , K^+ , $\text{Y}^{3+} \parallel \text{F}^-$ was studied by the visual-polythermal and thermographic methods, and the differential cooling curves were recorded with a Kurnakov pyrometer. The system has four crystallization fields (see Figure 1), three of which belong to the pure components, and one to the compound K_3YF_6 . The triangulating curve traced from the figurative point of the composition K_3YF_6 to NaF divides the triangle into two secondary phase systems: (I) $\text{NaF}-\text{YF}_3-\text{K}_3\text{YF}_6$ with eutectic E_1 at 554°C (44% NaF , 21% KF , 35% YF_3), and (II) $\text{NaF}-\text{KF}-\text{K}_3\text{YF}_6$ with eutectic E_2 at 648°C (32% NaF , 10% YF_3 , 58% KF). A characteristic feature of the system is the relatively low melting point (554°C) of the eutectic point E_2 (35% YF_3). The binary systems $\text{NaF}-\text{YF}_3$ and $\text{KF}-\text{YF}_3$ were also studied. In the first, there is a eutectic at 610°C (30% YF_3), and the compound NaYF_4 in the

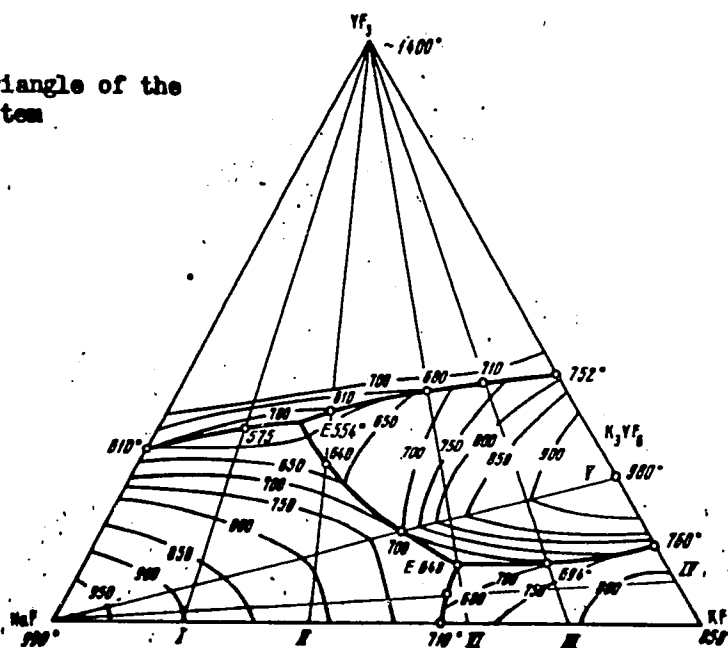
Card 1/3

UDC: 541.123:546.161

L 41732-66

ACC NR: AP6020374

Fig. 1. Composition triangle of the NaF-KF-YF₃ system.



Card 2/3

41732-66

ACC NR: AP6020374

solid phase. In the second, the compound K_2YF_6 with a eutectic at 980°C is formed; the eutectics are at 760°C (13% YF_3) and 750°C (43% YF_3). The compound KYF_4 exists in the solid phase. Orig. art. has: 6 figures.

SUB CODE: 07/ SUM DATE: 24Mar65/ ORIG REF: 002

Card 3/3 af

L 41733-66 ENT(m)/T/ENT(t) IJP(c) JD/WW/JW/JG

ACC NR: AP6020375

SOURCE CODE: UR/0078/66/011/003/0648/0651

AUTHOR: Babayeva, E. P.; Bukhalova, G. A.

ORG: Rostov Engineering and Construction Institute (Rostovskiy inzhenero-stroitel'nyy institut)

TITLE: The system Li^+ , Cs^+ , $Sc^{3+} \parallel F^-$

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 3, 1966, 648-651

TOPIC TAGS: cesium compound, scandium compound, fluoride, lithium compound, phase diagram

ABSTRACT: The study of molten scandium fluoride with fluorides of the extreme members of the series of alkali metals (Li^+ and Cs^+) sheds light on the interaction of the cations. In this connection, the system Li^+ , Cs^+ , $Sc^{3+} \parallel F^-$ was investigated by the visual-polythermal and thermographic methods by recording heating and cooling curves with a differential thermocouple. The $LiF-ScF_3$ system has a eutectic at $606^\circ C$ and contains 14.5% ScF_3 . The compound $LiScF_4$ is formed by a peritectoid reaction at $488^\circ C$. In the $CsF-ScF_3$ system, the dystectic at $1084^\circ C$ corresponds to the composition of the compound Cs_3ScF_6 . The eutectics crystallize at 680 and $798^\circ C$ with a respective ScF_3 content of 4 and 33%. In the $LiF-CsF$ system, the congruently melting compound $LiF \cdot CsF$ is formed. Eutectics at 490 and $479^\circ C$ contain 52% LiF and 40% LiF respectively. The crystallization surface of the ternary system Li^+ , Cs^+ , $Sc^{3+} \parallel F^-$

Card 1/2

UDC: 541.123:546.161

L 41733-66

ACC NR: AP6020375

was studied by means of twelve inner sections, on all of which the eutectic E_3 , corresponding to 584°C and a composition of 23% ScF_3 , 51% LiF , and 26% CsF , is well reproduced. The presence of three eutectic points, extremely low-melting as compared to the melting points of the components, was established in this system. The formation of the complex compound Cs_3ScF_6 predominates over that of the compound $\text{CsF}\cdot\text{LiF}$. Orig. art. has: 6 figures.

SUB CODE: 07/ SUBM DATE: 27Feb65/ ORIG REF: 002

Cord 2/2 af

L 45770-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6026299

SOURCE CODE: UR/0021/66/000/007/0917/0919

AUTHOR: Sheyko, I, M. -- Sheyko, I. N.; Bukhalova, H. O. -- Bukhalova, G. A.; Mal'tsev, V. T. 38 B

ORG: Institute of General and Inorganic Chemistry, AN URSR (Instytut Zahal'noyi ta neorhanichnoyi khimiyi AN URSR)

TITLE: NaF-KF-HfF₄ ternary system

SOURCE: AN UkrRSR. Dopovidy, no. 7, 1966, 917-919

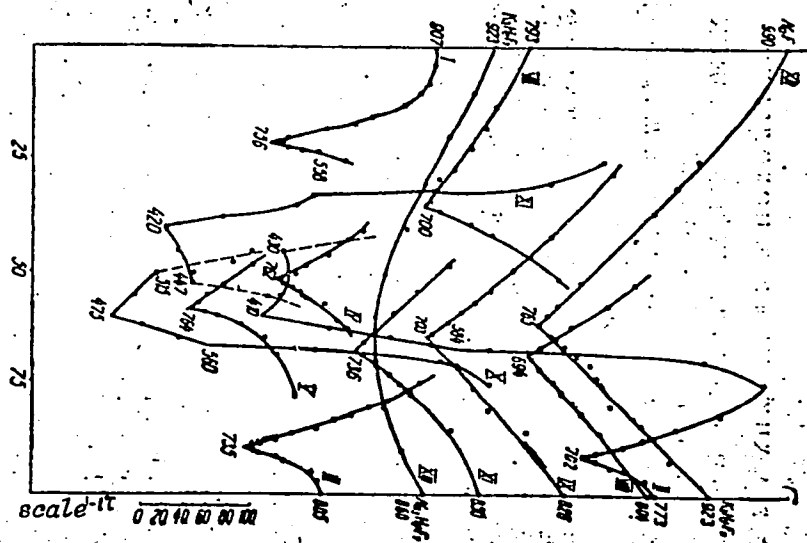
TOPIC TAGS: hafnium compound, sodium compound, potassium compound, fluoride, thermographic analysis, crystallization, eutectic mixture, solid solution, ternary alloy, phase diagram

ABSTRACT: The paper is a continuation of the authors' study on the interaction of hafnium fluoride with potassium and sodium fluorides in solution to obtain data for the electrometallurgy of hafnium. The method used for studying, preparation of alloys and apparatus used in this study is described in previous works by the authors. Both the visual polythermic and thermographic methods were used for studying melting in the NaF-KF-HfF₄ system. Thirteen internal sections were studied (see figure 1). A figure is given for the projection of the liquidus surface on the phase diagram for

Card 1/3

L 45770-66

ACC NR: AP6026299



Card 2/3

L 45770-66

ACC NR: AP6026299

6

the NaF-KF-HfF₄ ternary system. It is shown that surface crystallization is divided into 6 fields by monovariant curves: field I - HfF₄, II - NaHfF₅-KHfF₅ solid solution; III - Na₂HfF₆-K₂HfF₆ solid solution; IV - Na₃HfF₇-K₃HfF₇ solid solution; V - NaF; VI - KF. It is shown that the system has one ternary eutectic point with the composition: 27 mol.% NaF, 65% Kf, 8% HfF₄ with a melting point of 680°C. Visual polythermic and thermographic methods show that the compounds Na₃HfF₇, K₃HfF₇, Na₂HfF₆, K₂HfF₆, KNaHfF₅ and KHfF₅ form a continuous series of solid solutions, thus showing their isomorphism. The article was presented for publication by Academician AN URSR Yu. K. Delimars'kyy. Orig. art. has: 2 figures.

SUB CODE: 07, 20/ SUBM DATE: 19Jun65/ ORIG REF: 006

Card 3/3

L 08661-67 EWT(m)/EMP(t)/ETI IJP(c) WW/JW/JD/JQ

ACC NR: AF6019049

(A)

SOURCE CODE: UR/0078/66/011/002/011/011

AUTHOR: Bukhalova, G. A.; Babayeva, E. P.

ORG: Rostov Engineering -Construction Institute, Chair of General Chemistry (Rostovskiy inzhenerno-stroitel'nyy institut, Kafedra obshchey khimii)

TITLE: Li^+ , Cs^+ , Y^{3+} -F⁻ system

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 2, 1966, 402-405

TOPIC TAGS: phase equilibrium, lithium compound, cesium compound, yttrium compound, fluoride, *TERNARY ALLOY*

ABSTRACT: Phase equilibria in the ternary LiF - CsF - YF_3 system have been investigated by the visual-polythermic and thermographic methods, using the optical grade of LiF and analytical grade of CsF . Yttrium fluoride was prepared by the dissolution of yttrium nitrate in twice distilled hydrofluoric acid in the presence of ammonium carbonate, washing out NH_4NO_3 , dessication, and decomposition at 80-100C. The end product was roasted at 300-400C. Cooling curves were recorded with the aid of a differential Pt-Pt-Rh thermocouple in a platinum crucible. The data obtained by the authors for the LiF - YF_3 system differed from the first data obtained by Ye. P. Dergunov (Dokl. AN SSSR, 60, 1185, 1948), but are in agreement with the data of R. E. Thomas, et al. (Phase equilibria in the system LiF - YF_3 , Journal of Physical Chemistry, 1961, vol. 65, no. 7,

Card 1/3

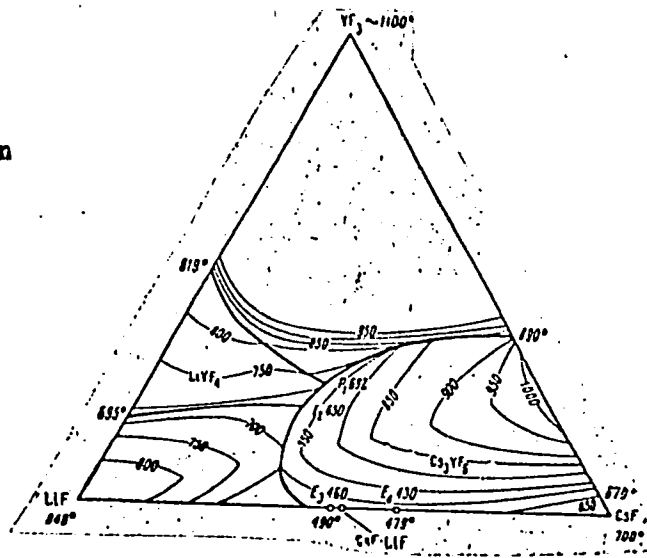
UDC: 541.123.6:546.161 ~

L 08661-67

ACC NR: AP6019049

1096-1099). The data on the CsF-YF_3 system, which for the first time had also been investigated by Ye. P. Dergunov, are in complete agreement with the data of the present work. The present study has determined that compounds formed by YF_3 and fluorides of lithium and cesium retain their melting characteristics in the ternary system: Cs_3YF_6 , the kryolite type of compound, melts congruently, and LiYF_4 , the 1:1 type of compound, melts incongruently (Figure 1).

Figure 1. Isotherms of the solidification fields of the system Li^+ , Cs^+ , $\text{Y}^{3+} \parallel \text{F}^-$



Card 2/3

I. 08661-67

ACC NR: AF6019049

The composition of the eutectics corresponding to points E_2 , E_3 , and E_4 is:

E_2 - 31% CsF, 21.5% YF_3 , 47.5% LiF at 650C

E_3 - 51.8% LiF, 0.2% YF_3 , 48% CsF at 460C

E_4 - 60% CsF, 0.2% YF_3 , 39.8% LiF at 430C.

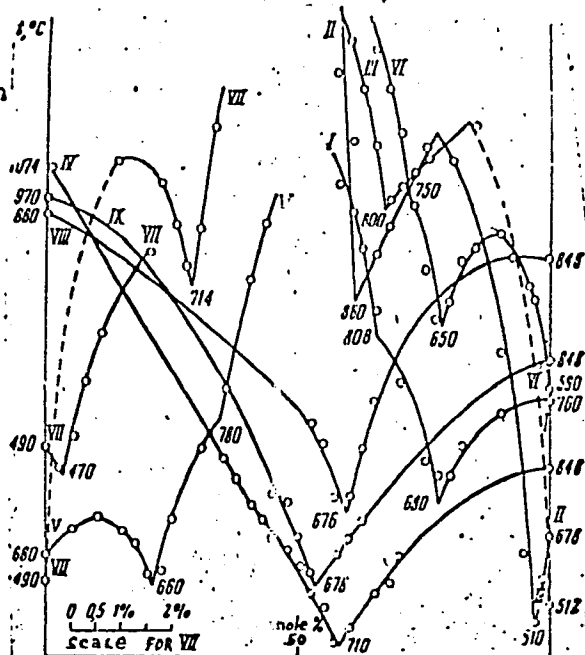
Sections of the LiF-CsF- YF_3 system are given (Figure 2). Orig. art. has: 6 fig.

Figure 2. LiF-CsF- YF_3 system

SUB CODE: 07/ SUBM DATE: 18May65/

ORIG REF: 003/ OTH REF: 001

Card 3/3



L 45770-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6026299

SOURCE CODE: UR/0021/56/000/007/0917/0919

AUTHOR: Sheyko, I. M. -- Sheyko, I. N.; Bukhalova, H. O. -- Bukhalova, G. A.; Mal'tsev, V. T. 38
B

ORG: Institute of General and Inorganic Chemistry, AN URSR (Instytut Zahal'noyi ta neorhanichnoyi khimiyi AN URSR)

TITLE: NaF-KF-HfF₄ ternary system

SOURCE: AN UkrRSR. Dopovid, no. 7, 1966, 917-919

TOPIC TAGS: hafnium compound, sodium compound, potassium compound, fluoride, thermographic analysis, crystallization, eutectic mixture, solid solution, ternary alloy, phase diagram

ABSTRACT: The paper is a continuation of the authors' study on the interaction of hafnium fluoride with potassium and sodium fluorides in solution to obtain data for the electrometallurgy of hafnium. The method used for studying, preparation of alloys and apparatus used in this study is described in previous works by the authors. Both the visual polythermic and thermographic methods were used for studying melting in the NaF-KF-HfF₄ system. Thirteen internal sections were studied (see figure 1). A figure is given for the projection of the liquidus surface on the phase diagram for

Card 1/3

L 45770-66

ACC NR: AP6026299

6

the NaF-KF-HfF₄ ternary system. It is shown that surface crystallization is divided into 6 fields by monovariant curves: field I - HfF₄, II - NaHfF₅-KHfF₅ solid solution; III - Na₂HfF₆-K₂HfF₆ solid solution; IV - Na₃HfF₇-K₃HfF₇ solid solution; V - NaF; VI - KF. It is shown that the system has one ternary eutectic point with the composition: 27 mol.% NaF, 65% Kf, 8% HfF₄ with a melting point of 680°C. Visual polythermic and thermographic methods show that the compounds Na₃HfF₇, K₃HfF₇, Na₂HfF₆, K₂HfF₆, KNaHfF₅ and KHfF₅ form a continuous series of solid solutions, thus showing their isomorphism. The article was presented for publication by Academician AN URSR Yu. K. Delimars'ky. Orig. art. has: 2 figures.

SUB CODE: 07, 20/ SUBM DATE: 19Jun65/ ORIG REF: 006

ms
Card 3/3

L 00891-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JW/JG

ACC NR: AP6021617

SOURCE CODE: UR/0021/66/000/006/0782/0784

AUTHOR: Sheyko, I. M. -- Sheyko, I. N.; Bukhalova, H. O. -- Bukhalova, G. A.; Mal'-tsev, V. T.

ORG: Institute of General and Inorganic Chemistry, AN URSR (Instytut zahal'noyi ta neorhanichnoyi khimiyi AN URSR)

TITLE: The $KF-HfF_4$ binary system

SOURCE: AN UkrRSR. Dopovidi, no. 6, 1966, 782-784

TOPIC TAGS: hafnium compound, fluoride, thermographic analysis, phase composition

ABSTRACT: The authors study the $KF-HfF_4$ system at 400-1000°C with a hafnium fluoride concentration of up to 55 mol.% by the visual-polythermal method and up to 35 mol.% by the thermographic method on M. S. Kurnakov's pyrometer. Heat effects which interfere with the study are encountered when hafnium fluoride concentration exceeds 55%. The visual-polythermal, thermographic and x-ray phase methods show that two congruently melting compounds, K_3HfF_7 and $KHfF_6$, and one incongruently melting compound, K_2HfF_6 , are formed during crystallization from liquidus in this binary system where HfF_4 concentration is less than 50 mol.%, while the compound K_4HfF_8 is formed in the solid phase. The article was presented for publication by Academician Yu. K. Delimars'kyy. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 19Jun65/ ORIG REF: 004

Card 1/1 afs

BUKHALOVA, L.N.

Advancement of southern cyclones in Transbaikalia. Trudy Dal'nevost.
NIGMI no.7:149-156 '59. (MIRA 13:6)
(Transbaikalia--Cyclones)

BUKHALOVA, V. I.

62/49T68

USSR/Medicine - Plankton
Medicine - Zoology

Mar/Apr 49

"Effect of Fresh Water on Zooplankton of the
Kovda Gulf in the White Sea," V. I. Bukhalova,
Chair of Zool of Invertebrates, Voronezh State
U, 6 pp

"In Ak Nauk SSSR, Ser Biol" No 2

Detailed studies to determine extent of contamina-
tion of White Sea water by fresh water and effect
of this contamination on the distribution and
amount of zooplankton in the sea. Maximum con-
tamination occurs in the upper strata of the sea
(a 10-meter belt). Results of vertical and
horizontal tests to determine distribution
of plankton. Plankton were most numerous near
river estuaries. Submitted by Acad I. S. Berg
26 Aug 47.

62/49T68

BUKHALOVA V.I.

BUKHALOVA, V.I.

Hydrobiological work in ponds of Voronezh Province. Trudy probl. 1
(MIRA 8:5)
tem. soveshch. no.2:147-149 '54.
(Voronezh Province--Ponds) (Fish culture)

BUKHALOVA, V.I.

Benthonic fauna in the waters of the TSimlyansk Reservoir bed.
Trudy probl. i tem. sov. no.7:162-164 '57. (MLRA 10:4)
(TSimlyansk Reservoir region--Fresh-water fauna)

BUKHALOVSKIY, I.N. (Leningrad)

Analysis of electrocardiogram voltage based on summary indexes.

Vrach.delo no.7:693-695 J1 '59.

(MIRA 12:12)

1. Kafedra fakul'tetskoy terapii No.2 (nachal'nik kafedry - prof.

I.T. Teplov) Voenno-meditsinskoy akademii.

(ELECTROCARDIOGRAPHY)

BUKHALOVSKIY, I.N.

Changes in certain electrocardiographic factors in acute radiation sickness produced by β -radiation and roentgen irradiation; Experimental investigations. Med.rad. 4 no.9:24-29 S '59.

(MIRA 12:11)

1. Iz kafedry fakul'tetskoy terapii (nach. - prof.A.A.Nechayev)
Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.

(RADIATION INJURY exper)

(ELECTROCARDIOGRAPHY radiation eff)

BUKHALOVSKIY, I.N., kand.med.nauk

Clinical aspects of asthmatic complications in acute bronchitis.

Sov.med. 26 no.2:42-45 F'63.

(MIRA 16:6)

(BRONCHITIS)

(ASTHMA)

BUKHANETS, B. (Donetsk); GAVRILENKO, P. (Donetsk)

In foreign countries. Radio no.9:59-60 S '65.

(MIRA 19:1)

BUKHANETS, B.N.

Designing the scale for a R-C oscillator. Izv.vys.ucheb.zav.;
prib. 7 no.2:3-8 '64. (MIRA 18:4)

1. Taganrogskiy radiotekhnicheskiy institut. Rekomendovana kafedroy
elektroizmeritel'noy tekhniki.

NIKULIN, V.M., kand. ekonom. nauk; BUKHANETS, I.F., inzh.

Efficient intensifiers for cement plants. TSement 30 no.3:9
My-Je '64. (MIRA 17:11)

1. Donetskiiy sovet narodnogo khozyaystva.

KASIMOVSKIY, Ye.V.; BRAGINSKIY, B.I.; BUKHANEVICH, B.A.; MANEVICH,
Ye.L.; SHKURKO, S.I.; KAPUSTIN, Ye.I.; MAYYER, V.F.;
MIL'NER, G.V.; GOTLOBER, V.M.; CHUFAROVA, G.P.;
RIMASHEVSKAYA, N.M.; MARKOV, V.I.; MIRKIN, V.D.; FILIPPOV,
V.V., red.

[Problems of labor economics] Problemy ekonomiki truda. Mo-
skva, Ekonomika, 1965. 309 p. (MIRA 18:8)

L 36866-66 EWT(m)/ENP(t)/ETI LJP(c) JD/JG
ACC NR: AP5017921 SOURCE CODE: UR/0426/66/019/003/0161/0166

AUTHOR: Oganesyan, V. Kh.; Bukhanevich, V. F.; Radzikovskaya, S. V.

ORG: Institute of Materials Science AN UkrSSR, Kiev (Institut problem materialovedeniya AN UkrSSR)

TITLE: Synthesis and the physicochemical properties of niobium sulfide

SOURCE: Armyanskiy khimicheskiy zhurnal, v. 19, no. 3, 1966, 161-166

TOPIC TAGS: niobium compound, niobium, sulfur compound, x ray analysis

ABSTRACT: Synthesis of niobium sulfide (Nb_2S_3) from metallic niobium and niobium oxide and the physicochemical properties of the $NbS_{1.6}$ product were investigated. It was found that the optimum conditions for converting metallic niobium or niobium oxide into $NbS_{1.6}$ are identical and consist of passing a H_2S stream over these materials at 1000° - $1300^{\circ}C$ for 2-4 hours. The content of the free sulfur in the niobium sulfide products varied within the 0.1-0.2% range. It was found that $NbS_{1.6}$ is stable toward boiling water and that it decomposes on treatment with concentrated sulfuric acid, concentrated or diluted nitric acid, and hydrogen peroxide.

Card 1/2

UDC: 546.221 + 546.882

L 36866-66
ACC NR: AP6017921

The $\text{NbS}_{1.6}$ was found to be stable toward oxygen up to 300°C , to oxidize above 300°C , and to oxidize to Nb_2O_3 within 10 minutes at 400°C . X-ray examination indicated that in $\text{Nb}_2\text{S}_{3.2}$ - $\text{Nb}_2\text{S}_{3.59}$, the niobium sulfide has a rhombic lattice with the following parameters: $a = 3.338 \text{ \AA}$ and $c = 17.827 \text{ \AA}$. Its density was 5.9 g/cm^3 . Other properties of $\text{NbS}_{1.6}$ were to be: electrical conductivity at room temperature $5 \cdot 10^{-3} \text{ ohm}\cdot\text{cm}$, thermal emf $+ 5.1 \text{ microvolts/degree}$, coefficient $+ 18.2 \cdot 10^{-4} \text{ cm}^3/\text{coulomb}$, and microhardness 40 kg/mm^2 . Niobium sulfide was found to be a p-type semiconductor. Orig. art. has: 5 figures and 2 tables.

SUB CODE: ⁰⁷09,20/ SUBM DATE: 13Jan65/ ORIG REF: 005/ OTH REF: 003

Card 2/2 *MEJ*

BUKHANOV, M.; PAL', R.V., red.

[Development of chemistry is a matter of our honor] Podniat'
khimiiu - delo nashei chesti. Ufa, Bashkirskoe knizhnoe
izd-vo, 1963. 90 p. (MIRA 17:7)

ACCESSION NR: AT4003125

S/2667/63/000/020/0088/0095

AUTHOR: Bukhanovskiy, I. L.

TITLE: The effect of limited visibility on the stand-by times of ships entering port

SOURCE: Moscow. Nauchno-issledovatel'skiy Institut aeroklimatologii. Trudy*, no. 20, 1963, 88-95

TOPIC TAGS: meteorology, visibility, fog visibility, sea port visibility, ship navigation, port fog condition, voyage length, voyage length visibility relationship, fog duration, seaport fog duration, seaport entry condition, ship standby time, ship seaport approach, fogbound seaport approach, fogbound seaport traffic, seaport shipdocking

ABSTRACT: Since the economic effectiveness of shore radio location stations depends chiefly on the frequency and duration of limited visibility (below 1 km) in relation to the intensity of the seaport traffic, the author develops a mathematical approach to the evaluation of the delays (stand-by times) which can be expected under varying conditions. By means of simplified examples, the author shows that the theoretical stand-by time per month depends, first of all, on whether ships will require radio assistance only while entering the port or during both

Card

1/9

3

ACCESSION NR: AT4003125

entry and exit, and then on the average interval between ship movements (t), where t is the number of hours in a month divided by the number of ship entries and/or departures, the duration of a period of poor visibility (T), and the interval between the movement of a particular ship and the beginning of the period of poor visibility (x). The number of simultaneously fogbound ships (m) is then given by T/t . These relationships are shown in Figs. 1 and 2 of the Enclosure. In the general case, the stand-by time for the m th ship (P_m) will be given by $T - (mt - x)$, so that the total stand-by time for m ships, where m is an integer, is given by:

$$P = mT - t \frac{m(m+1)}{2} + mx \quad (1)$$

If m is a fraction, equation (1) still applies if x lies between 0 and $t(m+1) - T$; but if x lies between the latter value and t , the equation becomes:

$$P = (m+1)T - t \frac{(m+1)(m+2)}{2} + (m+1)x \quad (2)$$

As an approximation, the average total stand-by time will be $T^2/2t$. During long periods of poor visibility, however, in seaports where the ships have to be guided in both directions, the number of outgoing ships will also be limited by the fact that the loading operations may not have been completed when the fog

Card. 2/8

ACCESSION NR: AT4003125

lifts. In this case, the average total stand-by time will be given by $1/2T(2k - 1) - 1/2t_1(k^2 - k)$ where T is the duration of poor visibility, t_1 is the average interval between the times when successive ships are ready for departure, and k , the number of fogbound ships, can be determined from the average stand-by time of a single ship by dividing by t_1 . The stand-by times for entering and outgoing ships can therefore be determined for each month, and summed for the entire year. Analysis shows that a 24-hour period of poor visibility once a month may be much more harmful than daily brief periods. In order to plan effectively for the optimal distribution of new radio location stations, the author suggests that data be collected on the number of days of poor visibility per month and per year for both favorable and unfavorable years, the cycle of repetition of such years, and the distribution of periods of poor visibility during the day in relation to the time of year. Orig. art. has: 5 figures and 7 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy institut aeroklimatologii (Scientific-research Institute for Aeroclimatology, Moscow)

SUBMITTED: 00

DATE ACQ: 14Jan64

ENCL: 02

SUB CODE: AS

NO REF SOV: 000

OTHER: 000

Card 3/5

BUKHAM, M. P.

LARIONOV, L. F.; BUKHAM, M. P. KONDRAT'YEV, T. M.

Cells

Ultraviolet absorption microscopy of living cells, Zhur. ob. biol., 12, No. 6, 1951.

Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

BUKHAN, I. Ye.

USSR/Cultivated Plants - Grains

M-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, No 1539

Author : I. Ye. Bukhan

Inst : Not Given

Title : The Problem of Sowing Periods and Methods for Millet in
Moldavia.

Orig Pub : Izv. Moldavsk. fil. AN SSSR, 1955, No 4, (24), 69-75

Abstract : Tests at the plant cultivation division of the Moldavian branch
of the Academy of Sciences USSR in the "Vraze noue" khilkhov
(1953-1954) have shown that the best period for sowing millet
in Moldavia is the second half of the month of May. The uni-
form furrow sowing of millet provides a greater grain yield
than by strip farming.

Card : 1/1

BUKHANETS, B.N.

Frequency errors of RC-oscillators. Izv.vys.ucheb.zav.; prib.
6 no.4:3-10 '63. (MIRA 16:8)

1. Taganrogskiy radiotekhnicheskiy institut. Rekomendovana
kafedroy elektroizmeritel'noy tekhniki.
(Oscillators, Electron-tube)

BUKHANETS, P.S.

68-1-8/22

AUTHORS: Seppar, A.M., Bukhanets, P.S., Ashikhmin, F.V., Lipkin, D.S.
and Zolotukhin, A.I.

TITLE: Automatic Control of Heating Conditions of Coke Ovens
(Avtomaticheskoye regulirovaniye teplovogo rezhima
koksovykh pechey)

PERIODICAL: Koks i Khimiya, 1958, No.1, pp. 30 - 35 (USSR)

ABSTRACT: Basic theoretical calculations and results of the
operation of the No.5 (automatically controlled) and No.6
(manually controlled) coke oven batteries on the Magnitogorsk
Metallurgical Combine (Magnitogorskiy Metallurgicheskiy
Kombinat) are described. The diagram of the automatic control
used is given in Fig.1. The scheme was proposed by F.V. Ashi-
khmin, head of KIP and Automatics of the MMK. The control of
heating conditions was based on the following principles:
1) the content of oxygen in the waste gas was kept constant by
variations in the proportion of coke oven gas supplied to the
mixture of coke oven - blast furnace gas. 2) The total volume
of coke oven and blast furnace gases used for the heating of
the battery was kept constant. 3) The calorific value and
composition of coke oven gas were assumed as being constant.

Card1/2 The duration of the test period, April 1st to 15th, 1957. On

68-1-8/22

Automatic Control of Heating Conditions of Coke Ovens.

the basis of the results obtained (Tables 2, 3), the following conclusions were reached: 1) The stability of mean-shift temperatures in both batteries was the same. 2) With the automatic control, the necessity for manual corrections of the supply of heating gas was decreased. 3) The stability of the distribution of pressure in heating systems in both batteries was the same. 4) With the automatic control differences between maximum and minimum consumption of heat decrease. 5) On the battery operating with the automatic control variations in the coefficient of excess air between the individual shifts decrease. There are 3 tables and 2 figures.

ASSOCIATIONS: MMK, Teploekhstantsiya and VUKhIN.

AVAILABLE: Library of Congress

Card 2/2

BUKHANEVICH, B.; SONIN, M.

Interregional regulating wages in the U.S.S.R. Vop. ekon.no.1:16-
28 Ja '57. (NLRA 10:3)
(Wages)

BUKHANEVICH, B.

BUKHANEVICH, B.

Problems in regional regulation of wages. Sots.trud no.2:51-59
F '57. (MLRA 10:5)
(Wages)

BUKHANEVICH, B.

Developing branch methods for planning labor productivity. Biul.
nauch.inform.; trud i zar.plata 4 no.6:3-8 '61. (MIRA 14:6)
(Labor productivity)

BUKHANEVICH, B.

Indicators of labor productivity in the machinery industry.
Sots.trud. 7 no.6:33-43 Je '62. (MIRA 16:2)
(Machinery industry—Labor productivity)

BUKHANEVICH, B.A.

EUKHANEVICH, B. A.

25614. BUKHANEVICH, B. A.

Dovedeniye pyatiletnego plana do rabochego. (Opyt Mosk. instrum. zavoda.)
Vestnik mashinostroeniya, 1948, No.7, s. 63-66.

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

BUKHANEVICH, Boris Arkad'yevich; KATASHOVA, R.I., red.; PONOMAREVA,
~~and A.A., tekhn. red.~~

[Factors contributing to the growth of labor productivity
and the calculation of their influence] Faktory rosta proiz-
voditel'nosti truda i raschet ikh vliianiia. Moskva, Eko-
nomizdat, 1963. 85 p. (MIRA 16:9)
(Labor productivity)

BRYUKNANOV, V. N., BUKHANEVICH, V. A. and LUNGERSGAUZEN, G. F.

"Aerial Photography in Geological Explorations in the USSR"

report submitted for the United Nations Seminar on Aerial Survey Methods and Equipment, Bangkok, Thailand, 4 January - 5 Feb 1960

ACC NR: AP6009569 (N)

SOURCE CODE: UR/0226/65/000/011/0009/0014

AUTHOR: Obolonchik, V. A.; Radzikovskaya, S. V.; Bukhanovich, V. F.

ORG: Institute for the Study of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Study of the sulfides of niobium and tantalum

SOURCE: Poroshkovaya metallurgiya, no. 11, 1965, 9-14

TOPIC TAGS: sulfide, hydrogen sulfide, niobium, tantalum, oxidation, crystal lattice structure

ABSTRACT: The interaction between Nb and Ta metal powders and H_2S was investigated with the aid of the setup shown in Fig. 1, in the presence of a hydrogen flow rate of 0.2 liter/min. Following purification to remove oxygen, a current of hydrogen is passed over molten sulfur in reactor 4 where it interacts with S vapors so as to form H_2S which then proceeds to quartz reactor 5 which contains a porcelain boat with the suspension of Nb or Ta. The resulting $(NbS_{1.6}$ at 1000-1300°C, TaS_2 at 1400°C) sulfide is then cooled in a H_2S current and analyzed for the content of metal and total and free sulfur. $NbS_{1.6}$ is a black-colored powder which does not decompose in air. Radiographic examination showed that the lattice parameters of $NbS_{1.6}$

Cord 1/3

ACC NR: AP6009569

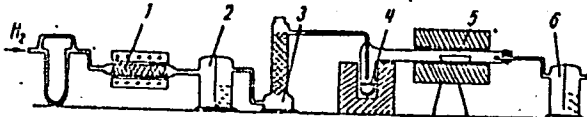


Fig. 1. Diagram of setup for sulfide synthesis

1 - heated tube with platinized asbestos; 2 - Tishchenko flask with conc. H_2SO_4 ; 3 - P_2O_5 -filled column; 4 - reactor for H_2S synthesis; 5 - reactor for sulfide synthesis; 6 - Tishchenko flask with 15-20% NaOH (for absorption of excess H_2S)

are: $a = 3.338 \text{ \AA}$ and $c = 17.82 \text{ \AA}$. Its pycnometric density, as determined in toluene, was 5.9 g/cm^3 against the calculated 6.0 g/cm^3 . For TaS_2 the lattice parameters are: $a = 3.37 \text{ \AA}$ and $c = 5.89 \text{ \AA}$ and the pycnometric density, 7.10 g/cm^3 in toluene (against the calculated

Card 2/3

ACC NR: AP6009569

7.16 g/cm³). TaS₂ is a black-colored powder with a greenish tinge, which also does not decompose in air. The resistance of both sulfides to various aggressive media (HCl, H₂SO₄, HNO₃, H₃PO₄, NaOH (40% and 10%), H₂O₂, H₂O, bromine water) on heating for 1 hr was investigated. Findings: NbS_{1,6} and TaS₂ are completely resistant to boiling in water but totally decompose in solutions of oxidizing agents: conc. H₂SO₄, dil. HNO₃, and H₂O₂. In addition the oxidizability of NbS_{1,6} and TaS₂ on heating in a current of O₂ (200 ml/min) was investigated as a function of time. It was found that both sulfides are resistant to O₂ at up to 300°C; beyond this temperature both sulfides begin to oxidize and release SO₂. NbS_{1,6} gets completely oxidized at 400°C and TaS₂, at 500°C; the final products are Nb₂O₅ or Ta₂O₅ (depending on the sulfide concerned) and SO₂. Orig. art. has: 6 tables, 3 figures.

SUB CODE: 07, 20/ SUBM DATE: 07May65/ ORIG REF: 002/ OTH REF: 006

Card 3/3



LYUTAYA, M.D.; BUKHANEVICH, V.F.

Chemical and thermal stability of nitrides of elements of
the third group. Zhur.neorg.khim. 7 no.11:2487-2494
N '62. (MIRA 15:12)

1. Institut metallokeramiki i spetsial'nykh splavov
AN UkrSSR.

(Nitrides)

OBOLONCHIK, V.A.; RADZIKOVSKAYA, S.V.; BUKHANEVICH, V.F.

Studying niobium and tantalum sulfides. Porosh.met. 5 no.11:9-14
N '65. (MIRA 18:12)

1. Institut problem materialovedeniya AN UkrSSR. Submitted May
7, 1965.

L 45583-66 ESP(e)/ENT(m)/ENF(t)/ETI 101(c) JD/JG/NB/AT/WH
ACC NR: AP6031516 SOURCE CODE: UR/0073/66/032/009/0926/0929

AUTHOR: Bukhanevich, V. F.; Radzikovskaya, S. V.

ORG: Institute of the Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Preparation and properties of tantalum disulfide

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 32, no. 9, 1966, 926-929

TOPIC TAGS: refractory compound, tantalum compound, tantalum disulfide, inorganic synthesis, high temperature oxidation, chemical resistance

ABSTRACT: Preparation and properties of tantalum disulfide have been studied to supplement literature data on sulfides of refractory transition metals. Direct reaction of the powdered metal with hydrogen sulfide was selected as the method of preparation most adaptable to industrial processes and susceptible to yield single-phase tantalum sulfides. Stoichiometric tantalum disulfide (TaS_2) in powdered form was obtained by reacting at 1400C 99.0% tantalum metal with hydrogen sulfide which was prepared in situ from hydrogen and sulfur vapors. The lattice parameters and picnometric density of the product were found to be in agreement with literature data and with the calculated value, respectively. The TaS_2 product was found to be stable in boiling

Card 1/2

UDC: 546.883